

A New Species of *Desmodium* (Leguminosae) from China

Hiroyoshi OHASHI and Tomoyuki NEMOTO

Biological Institute, Graduate School of Science,
Tohoku University, Sendai, 980-0845 JAPAN

(Received on September 29, 1997)

A new species, *Desmodium luteolum* H.Ohashi & T.Nemoto (Leguminosae-Papilionoideae: Desmodieae), is described from N.E. Yunnan in China. The holotype and isotype are in KUN. It is the second species of the subgenus Catenaria, and the 37th species as well as 7th endemic species of the genus in China. This species has an intrastaminal disk and a pair of openings at the base of vexillary stamen. Such structures appear to allow insect visitors' access to the nectar and seem to play an important role in pollination of this species.

A specimen of undetermined *Desmodium* was found during our examination of unnamed herbarium specimens in the Kunming Botanical Institute (KUN) in Yunnan, China, in 1994 (Fig. 1). It is characteristic in having narrowly elliptic leaflets, winged petioles, densely flowered long pseudoracemes, and somewhat large flowers. According to the collector's note, the plant is a shrub about 50 cm high with pale yellow flowers. The plant seems to be similar to *Desmodium caudatum* (Thunb.) DC. in its petioles and leaflets or *D. stenophyllum* Pamp. in its leaflets and flowers, but, it differs from both in having an obtuse leaflet apex (vs. an attenuate to caudate apex in the latter two) and in the density of flowers in an inflorescence. After examining the flowers in greater detail, it became clear that the unknown plant is closer to *D. caudatum* than *D. stenophyllum*. It shares with the former a standard with a corollate blade, a diadelphous androecium and a disk around the base of pistil (Fig. 2), while the latter has a standard with an attenuate blade to the claw, a monadelphous androecium and no disks around the pistil (Ohashi 1971). Moreo-

ver, it shares many additional characters with *D. caudatum*, i.e., winged petioles, pale yellow flowers, a calyx in which the lowest calyx-lobe is as long as the lateral lobes, and flowers in which the wings are shorter than the keel. In addition to the differences in leaflet shape and flower density in the pseudoraceme mentioned above, the plant differs from *D. caudatum* in having larger flowers and auriculate wings. Moreover, the leaves of *D. caudatum* are often discolored to blackish when dry, but those of this plant are greenish brown. Although the pods are not known, it seems clear from these observations that this plant is a new species and most close to *D. caudatum*. It belongs, therefore, to the subgenus Catenaria (Ohashi 1973), and it is the second species of the subgenus.

This new species has a pair of small openings between the filaments at both sides of the base of the vexillary stamen. This feature has been recorded in tribe Tephrosiaeae (=Millettiaeae) (Geesing 1981, 1984) and in the genera *Kummerowia* and *Lespedeza* by Nemoto et al. (1995). The openings are associated with

April 1998

Journal of Japanese Botany Vol. 73 No. 2

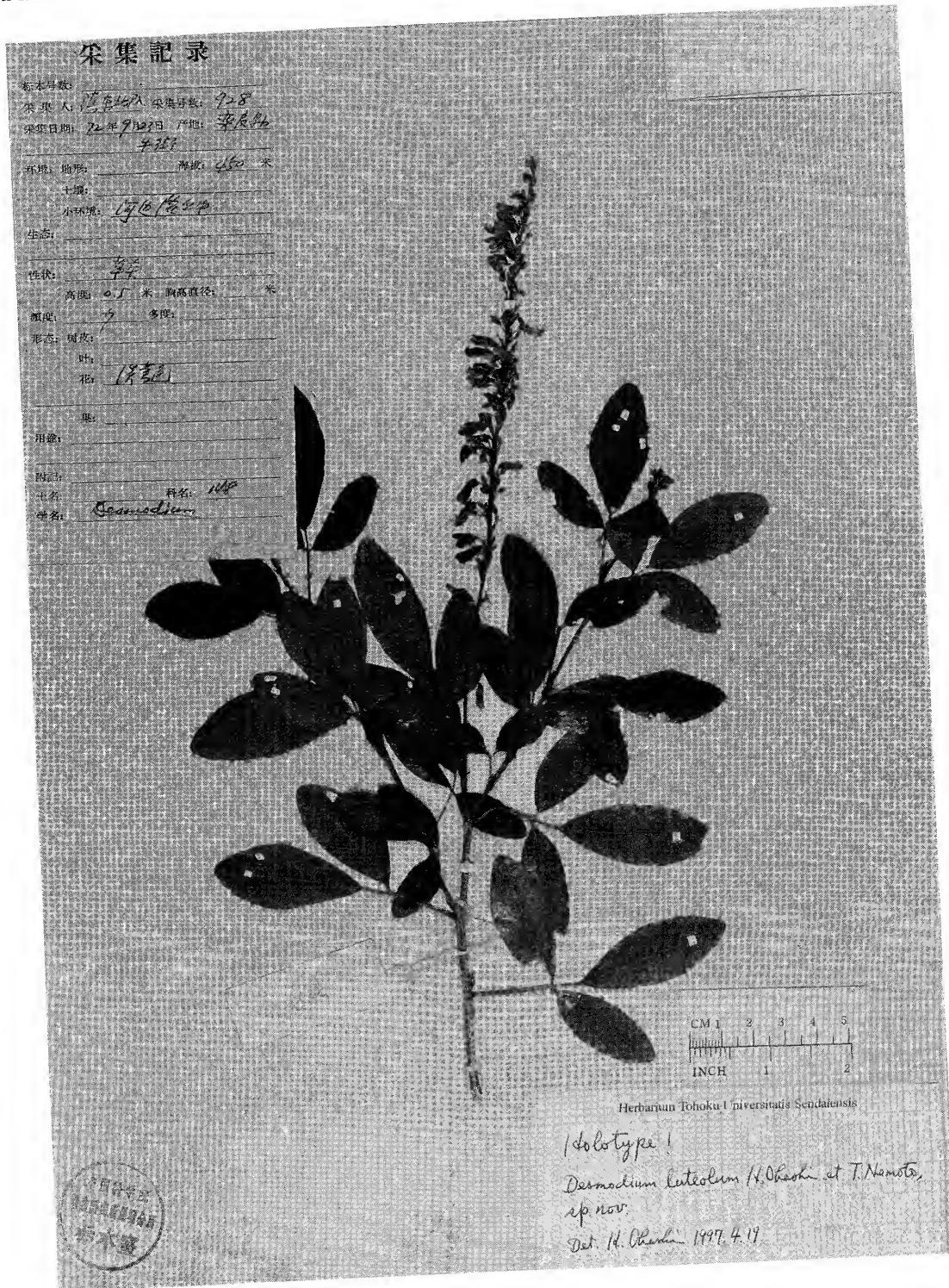


Fig. 1. Holotype of *Desmodium luteolum* H.Ohashi & T.Nemoto (KUN).

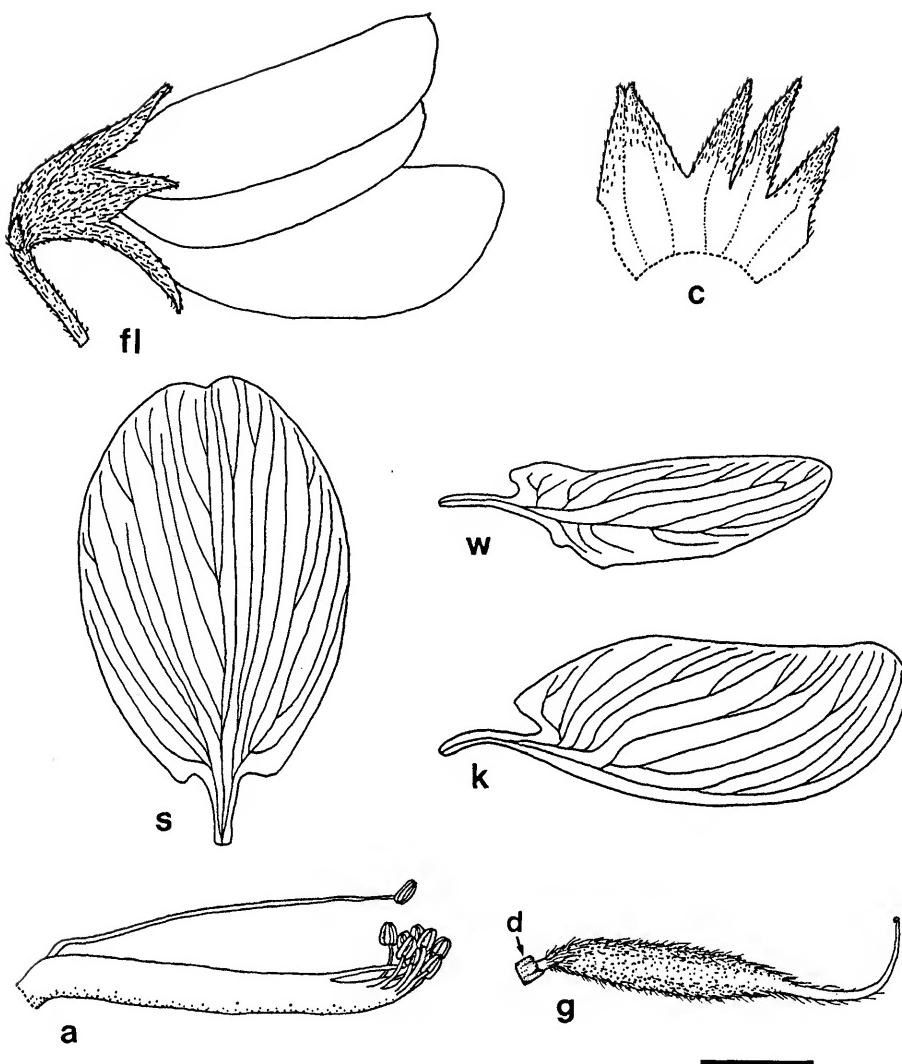


Fig. 2. Flower of *Desmodium luteolum*. a: stamens, c: calyx, d: disk, fl: flower, g: pistil, k: keel petal, s: standard, w: wing. Scale bar = 2mm.

the presence of intrastaminal disk, and the structure seems to play an important role in pollination by allowing insect visitors' access to the nectar of the species. This is the first description of such openings in *Desmodium*.

Recently, Ohashi (1995) recognized 36 species including six endemic ones in China; hence, this new species represents the 37th species and seventh endemic one of the genus in the area.

***Desmodium luteolum* H. Ohashi & T. Nemoto, sp. nov.**

Optime distinguitur a *D. caudato*, foliolis apice obtusis et pseudoracemis dense floribus magnis.

Frutex ad 50 cm altus. Folia 3-foliolate, petiolata, stipulifera; stipulae persistentes, anguste triangulatae, 5–7 mm longae; foliola anguste elliptica, apice obtusa, supra glabra, terminalia 4–5 cm longa, 1.5–2 cm lata.

Pseudoracemi juniores terminales pedunculati, 19 cm longi, rhachi pilis adpressis et uncinatis vestita. Pedicelli 2–4 mm longi; calyx campanulatus ca. 3.5 mm longus. Corolla luteola; vexillum ellipticum, ca. 8 mm longum, apice leviter retusum, ungue ca. 1 mm longo; ala carinaque brevior, ca. 7 mm longa; carina 8–8.5 mm longa; stamina diadelpha, filamentum vexillare liberum; pistillum 7.5–8 mm longum, breviter stipitatum, disco tubuliformi circumcincto, ovarium 4–4.5 mm longum, dense adpresso puberulum, 4-ovulatum. Legumen ignotum.

Type: China. N.E. Yunnan: Yilian, Niujie, alt. 450 m. in shrub forests beside a river. Shrub 0.5 m high, flowers pale yellow. Collected on 23 Sept. 1972. Expedition team to N.E. Yunnan no. 928 (KUN-holotype and isotype; photo in TUS).

A shrub about 50 cm tall, stems glabrescent. Leaves alternate, stipulate, 3-foliolate, petiolate; leaflets stipellate, narrowly elliptic, obtuse at apex, the principal lateral nerves looped within margin. Stipules persistent, narrowly triangular, 5–7 mm long. Petioles slightly winged. Terminal leaflets stipellate, more or less larger than the lateral ones, 4–5 cm long, 1.5–2 cm wide, glabrous above, appressed straight pubescent on nerves below, the rachis 5–8 mm long, slightly winged, sulcate above; lateral leaflets pulvinate, sessile, stipellate on adaxial side; stipels filiform, 2–4 mm long.

Inflorescences terminal, pseudoracemose, 5–7-flowered at a node, appressed pubescent and with minute hooked hairs, 19 cm long when young (probably shortly paniculate at lower nodes when mature); primary bracts narrowly triangular, 3–4 mm long.

Flowers about 9 mm long; pedicels 2–4 mm long, pubescent; bracteoles 2 at the base of calyx, ovate, about 0.5 mm long. Calyx campanulate, symmetrical to the base, 5-lobed but the upper two united near to the tip, densely appressed pubescent outside; tube about 1.5

mm long; lobes about 2 mm long, almost same in length, the lateral one narrowly triangular, the lowest one slightly longer than others, appressed pubescent inside.

Corolla pale yellow, distinctly veined; standard elliptic, about 8 mm long, 5 mm wide, slightly retuse at apex, with a claw of about 1 mm long, slightly auriculate at base of lamina; wings smaller than the keel-petals, about 7 mm long, obtuse at apex, the lamina narrowly elliptic, about 5.5 mm long, 2 mm wide, a little auriculate at upper side of base, the claw 1–1.5 mm long; keel-petals 8–8.5 mm long, rounded at apex, the lamina about 7 mm long, 3 mm wide, auriculate at upper side of base, the claw 1.5–2 mm long. Androecium diadelphous; the vexillary stamen free from the stamens of both sides and with small openings (fenestrae) at both side at the base; the remaining 9 stamens connate 4/5 or more of the length. Disk present at the base of pistil, about 0.3 mm tall. Pistil slightly S-shaped, 7.5–8 mm long, stipitate, the stipe about 0.5 mm long, glabrous, the ovary 4–4.5 mm long, 4-ovuled, densely appressed puberulent, the style curved upward, pilose on both sutures, the stigma small. Pods and seeds unknown.

We wish to thank Professor Wu Sukung and Dr. Sun Hang of Kunming Institute of Botany in Yunnan, China, for permission and kind help during our work in KUN. This study was financially supported by grant-in-aid No. 04041019 (1992–94) to H. Ohashi from the Monbusho International Scientific Research Program.

References

- Geesink R. 1981. Tephrosiaeae. In: Polhill R. M. and Raven P. H. (eds.), Advances in Legume Systematics. Part 1, pp. 245–360. Royal Botanic Gardens, Kew, England.
- 1984. Scala Millettiaeum. 131 pp. Leiden Botanical Series 8. E. J. Brill/Leiden University Press, Leiden, The Netherland.
- Nemoto T., Ohashi H. and Tamate H. 1995. Phylogeny

- of *Lespedeza* and its allied genera (Desmodieae-Lespedezinae). In: Crisp M. and Doyle J. J. (eds.), Advances in Legume Systematics Part 7. Phylogeny, pp. 351–358. Royal Botanic Gardens, Kew, England.
- Ohashi H. 1971. A monograph of the subgenus Dollinera of the genus *Desmodium* (Leguminosae). In: Hara H. (ed.): The Flora of Eastern Himalaya 2: 259–320. University of Tokyo, Tokyo.
- 1973. The Asiatic Species of *Desmodium* and Its Allied Genera (Leguminosae). 318 pp., 76 pls. Ginkgoana 1. Academia Scientific Book, Inc., Tokyo.
- 1995. An enumeration of Chinese *Desmodium* and its allied genera (Leguminosae). J. Jpn. Bot. 70: 111–117.

大橋広好、根本智行：中国産マメ科ヌスピトハギ属の一新種

1994年に昆明植物研究所のハーバリウムでヌスピトハギ属植物の標本を調べたところ、1新種と思われる花期に採集された標本を2枚発見した。これらの標本に基づいて、*Desmodium luteolum* H. Ohashi & T. Nemoto を命名・記載した。この新種は、葉柄に狭い翼のあること、側萼裂片と最下の萼裂片は同長であること、花はうすい黄色であり、旗弁舷部の基部は心形、翼弁は龍骨弁よりも短いこと、花内蜜腺をもつこと、などの特徴で、ミソナオシに類似するが、小葉は鈍頭であり、花序には1節に5–7花がつくこと、花が大きく（本種では約9mmあるが、ミソナオシでは7–8mm）、翼弁に耳状の突起があることなどで区別できる。また、旗

弁側の1本の雄しべの基部両側に龍骨弁側の雄しべとの間にできた小形の隙間がある。この構造は訪花昆虫を花内蜜腺に到達させるための誘因装置と考えられ、ナツフジ連（Geesink 1981, 1984）、ハギ属（Nemoto et al. 1995）、ヤハズソウ属（Nemoto et al. 1995）では既に記録されているが、ヌスピトハギ属では初めての報告である。

Ohashi (1995) は最近中国のヌスピトハギ属との近縁種のリストを発表したが、その分類体系によれば本種は中国のヌスピトハギ属植物の中で37番目の種でかつ7番目の固有種であることになる。

（東北大学大学院理学研究科生物学教室）